

IN THE CLAIMS

1 (Currently Amended). A method comprising:
forming a phase change memory including a phase change storage element and a phase change threshold switch; and
forming a damascene via to a conductive line in the periphery of said ~~a~~ phase change memory.

Claim 2 (Canceled).

3 (Currently Amended). The method of claim 1 ~~-2-~~ including forming said switch over said element.

4 (Currently Amended). The method of claim 3 including forming a pore over a substrate, said pore having a dimension smaller than the feature size possible with ~~available~~ lithographic techniques.

5 (Original). The method of claim 4 including forming said pore by forming an aperture through an insulator and forming a sidewall spacer in said aperture.

6 (Currently Amended). The method of claim 5 including forming a ~~the~~ lower electrode of said phase change storage element in said pore.

7 (Currently Amended). The method of claim 1 ~~-2-~~ including forming a barrier layer between said threshold switch and said storage element.

8 (Currently Amended). The method of claim 1 including forming an upper electrode over said phase change storage element, said upper electrode having ~~that has~~ a vertical extent at least twice its horizontal extent.

9 (Currently Amended). The method of claim 1 ~~2~~ including forming an upper electrode over said phase change storage element and said threshold switch, said electrode having sidewall spacers.

10 (Original). The method of claim 9 including using said sidewall spacers as a mask to etch through underlying layers.

11 (Currently Amended). The method of claim 1 including forming a plurality of memory cells as a plurality of integrated islands spaced from one another.

12 (Original). The method of claim 11 including filling the regions surrounding said islands with an insulator.

13 (Currently Amended). The method of claim 12 including forming said insulator to a height over the upper extent of said ~~upper electrodes~~ islands.

14 (Currently Amended). The method of claim 13 including forming grooves through said insulator down to and past the upper extent of said ~~upper electrodes~~ islands.

15 (Original). The method of claim 13 including forming a vertical groove in a memory array and a periphery.

16 (Original). The method of claim 15 including filling said groove in said periphery with a sacrificial light absorbing material.

17 (Original). The method of claim 16 including etching said groove in said periphery into said sacrificial light absorbing material.

18 (Currently Amended). The method of claim 17 wherein forming a damascene via includes filling said groove ~~grooves~~ with a conductive material.

19 (Original). The method of claim 18 including forming said groove in said periphery deeper than said grooves in the memory array.

20 (Original). The method of claim 19 including forming said grooves in said periphery to a depth below the upper extent of said upper electrode and above the lower extent of said upper electrode.

21 (Currently Amended). An apparatus comprising:
a phase change memory including a phase change storage element and a phase change threshold switch;
~~a phase change material;~~
a conductive line coupled to said phase change ~~material~~ storage element and said phase change threshold switch; and
a ~~damascene~~ via to said conductive line.

Claim 22 (Canceled).

23 (Currently Amended). The memory of claim 21 ~~22~~ wherein said switch is formed over said element.

24 (Currently Amended). The memory of claim 23 including a substrate, a pore over said substrate, said pore having a dimension smaller than the feature size possible with ~~available~~ lithographic techniques.

Claim 25 (Canceled).

26 (Currently Amended). The memory of claim 24 ~~25~~ including an electrode for said phase change storage element in said pore.

27 (Currently Amended). The memory of claim 21 ~~22~~ including a barrier layer between said threshold switch and said storage element.

28 (Currently Amended). The memory of claim 21 including an upper electrode having a vertical extent at least twice its horizontal extent, said upper electrode formed over the phase change storage element.

29 (Original). The memory of claim 21 wherein said damascene via includes a metal line extending through an insulator.

Claims 30-36 (Canceled).